



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/032,051	12/21/2001	Stephen G. Grubb	980721CIPCIP	6186

21398 7590 09/09/2003

CORVIS CORPORATION
INTELLECTUAL PROPERTY DEPARTMENT
7015 ALBERT EINSTEIN DRIVE
COLUMBIA, MD 210469400

EXAMINER

MOSKOWITZ, NELSON

ART UNIT PAPER NUMBER

3663

DATE MAILED: 09/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/032,051

Applicant(s)

GRUBB ET AL.

Examiner

Nelson Moskowitz

Art Unit

3663

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 and 23-28 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-19 and 23-28 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

Application 10/032,051

DETAILED ACTION

1. Claims 1-19 and 23-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Desurvire or Masuda et al when taken with Aida et al or Ma et al.

In determining obviousness, the following factual determinations are made:

- a. First, the scope and content of the prior art.
- b. Second, the difference between the prior art and the pending claims.
- c. Third, the level of skill of a person on ordinary skill in this art;
- d. Fourth, whether other objective evidence may be present, which indicates obviousness or nonobviousness. See, e.g., *In re Dembiczak*, 175 F.3d 994, 998, 50 USPQ2d (BNA) 1614, 1616 (Fed. Cir. 1999) citing *Graham v. John Deere Co.*, 383 US 1, 17-18, 148 USPQ2d (BNA) 459, 466-67 (1966).

Objective evidence includes long felt but unmet need for the claimed invention, failure of others to solve the problem addressed by the claimed invention, and other factors. See e.g. *Simmons Fastener Corp. v. Illinois Tool Works, Inc.*, 739 Fed. 1573, 1574-76, 22 USPQ 744, 745-47 (Fed. Cir. 1984).

Examining the scope and content of the prior art one finds the following:

- a. Desurvire and Masuda et al disclose prior art optical transmission systems with plural optical processing nodes which comprise plural signal varying devices between the nodes (see, inter alia, pages 116-119 of Desurvire, and Fig. 1 of Masuda). Furthermore, Masuda discloses (pages 73-74) the use of two Raman amplifiers in series, and the in series use of a doped fiber amplifier with a Raman amplifier.

b. Aida et al and Ma et al teach the use of signal varying devices (inter alia, Raman and doped amplifiers, and their respective pumps) having differing signal variation profiles. See, inter alia, Fig. 10 and pages 225 and 228 of Aida, and Fig. 1 of Ma et al. These systems are noted to provide greater bandwidth, increased gain, and increased repeater spacing.

Secondly, under Deere, the difference between the claimed invention and the prior art lies in the combination of the plural diverse fiber optic amplifiers with their separate pumping, in between nodes in optical data transmission systems.

Third, under Deere, the level of ordinary skill in this art may be determined by the analysis of the Court as set forth in Environment Designs Ltd. v. Union Oil Co., 713 F. 3d 693, 281 USPQ 865-69 (Fed Cir. 19830 cert. denied, 464 1043 (1984)), where the court listed factors relevant to a determination of the level of ordinary skill; type of problems encountered in the art, prior art solutions, rapidity of innovations, sophistication of technology, and educational level of active worker in the field.

The types of problems encountered in the art involve inadequate signal power and bandwidth in fiber optical communication signals.

Innovation in this field has been very fast as can be seen from virtual birth of this field in the 1970s to its present highly complex and sophisticated status.

Prior art solutions include Raman and doped fiber amplifiers in series and with separate pumps. Skilled artisans generally have graduate level education and over seven (7) years of experience, as can be seen from published articles in the major journals in this field, e.g. IEEE Photonics Technology Letters, Optical Communications, Optics, Optical Fiber Technology, Electronics Letters, etc.

To date, no secondary consideration (objective evidence) has been presented.

Therefore, as the above prior art taught the benefits of using fiber optical amplifiers in order to increase their efficiency and output power, such combination would have been obvious to one of ordinary skill in this art.

As to the dependent claims directed to gain flattening, pump radiation reflection by grating mirrors, and smaller core fibers, these items are ubiquitous in this art, and it is earnestly believed that Applicant will not contend to the contrary. As such their use in the aforesaid amplifier system would have been obvious to a skilled artisan for the improved efficiency and S/N of the amplifier systems.

As the aforesaid prior art is known by optical physicists to provide the respective benefits and improvements as set forth above, the physicist would have been led to make the obvious combination of these teachings in order to obtain the benefits this prior art taught and the artisan would typically readily recognize.

2. The references cited by Applicant (PTO-1449) have been considered and found generally representative of the state of this art. Applicant is advised that the M.P.E.P. states the following with respect to large information disclosure statements:

Although a concise explanation of the relevance of information is not required for English language information, applicants are encouraged to provide a concise explanation of why the English-language information is being submitted. Concise explanations (especially those that point out the relevant pages and lines) are helpful to the Office, particularly where documents are lengthy and complex and applicant is aware of a section that is highly relevant to patentability or where a large number of documents are submitted and applicant is aware that one or more is highly relevant to patentability.

M.P.E.P. § 609. This statement is in accord with dicta from *Molins PLC v. Textron, Inc.*, 48 F.3d 1172 (Fed. Cir. 1995), *Id.* at 1888. This case presented a situation where the disclosure was in excess of 700 pages and contained more than fifty (50) references. *Id.* 1888. The present disclosure statement contains more than seventy (70) references containing many hundreds of pages and is part of a family of at least seven (7) patent applications. A cursory glance at the M.P.E.P. also provides more support for this position. In a subsection entitled “Aids to Compliance With Duty of Disclosure,” item thirteen states:

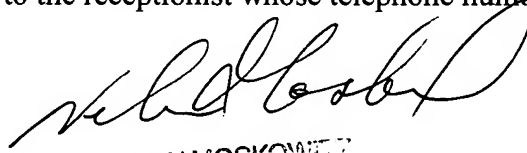
It is desirable to avoid the submission of long lists of documents if it can be avoided. Eliminate clearly irrelevant information and marginally pertinent cumulative information. If a long list is submitted, highlight those documents which have been specifically brought to Applicant's attention and/or are known to be of the most significance. See Penn Yan Boats, Inc. v. Sea Lark Boats, Inc., 359 F.Supp 948 (S.D. Fla. 1972) aff'd 479 F.2d 1338 (5th Cir 1974); [Molins].”

M.P.E.P. § 2004. Therefore, it is recommended that if any information that has been cited by Applicant in the previous disclosure statement, is known to be material to patentability as defined by 37 C.F.R. § 1.56, Applicant should present a concise statement as to the relevance of that/those particular documents therein cited.

3. References A, N and V-X (PTO-892) are cited to show the widespread knowledge of using dual Raman pumps in fiber optic communication systems.
4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nelson Moskowitz whose telephone number is 703-306-4165. The examiner can normally be reached on Monday through Friday from 7:30 a.m. to 4:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Thomas Black, can be reached on (703) 306-4171. The before final fax phone number for the organization where this application or proceeding is assigned is 703-872-9326. The after final fax phone number for the organization where this application or proceeding is assigned is 703-872-9327.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.



NELSON MOSKOWITZ
PRIMARY EXAMINER